

IN THE SPECIFICATION:

Please amend paragraph [0005] as follows:

[0005] Semiconductor cards are typically intended for repeated handling by the public, necessitating protection of the components from mechanical forces, moisture, radiation and stray electrical currents, etc. In addition, the surface materials of the card must be resistant to normal wear and tear. This is particularly true in peripheral portions of the card. In the industry, the semiconductor components and interconnecting conductors on the circuit side of a card substrate have typically been encapsulated by first applying applying a "glob top" encapsulant. Then, a separately formed protective cover produced by injection molding is adhesively attached over the circuit side of the substrate to form the semiconductor card. However, use of a separately formed cover not only adds undesirable thickness to the card but requires additional process steps and is subject to deleterious detachment of the cover from the substrate. In addition, any variation in mounted component height and overlying glob top material will result in card thickness variation.

Please amend paragraph [0008] as follows:

[0008] In present methods of manufacture, components for several semiconductor cards are fabricated and wire bonded on a strip of, *e.g.*, circuit board. The strip may be viewed as equivalent to the lead frame in die manufacture. The individual cards are then separated from the strip using a singulation process such as sawing. ~~Often~~ Often, the singulation step produces slivers or burrs and may form card edges which are rough or sharp. These defects can adversely affect the peripheral outline, dimensions, appearance and use of the card.

Please amend paragraph [0053] as follows:

[0053] Each substrate 12 is defined by a peripheral opening 80 having inner edge 82 and outer edge 84, the width 68 width therebetween being sufficient to provide room for the second molded plastic casting 28 to encase the peripheral edge 30 of the substrate. The peripheral outline 74 (hatched line of FIG. 5) of the produced semiconductor card 10 lies within the peripheral opening 80. The substrate 12 is connected to the frame 62 (and supported thereby)

by a plurality of connecting segments 90, which are similar to tie bars used in lead frames for semiconductor manufacture. Lateral extensions 81 (see FIG. 9C) of the peripheral opening 80 are shown as providing a desired length 92 of each connecting segment 90. A width 94 of each connecting segment 90 is provided which supports the substrate 12 during processing. The width 94 will depend upon the size, thickness, strength, and ductility of the substrate 12. For fabrication of a semiconductor card 10 having the dimensions indicated above, the connecting segment width 94 is preferably in the range of about 1 to about 3 mm.

Please amend paragraph [0063] as follows:

[0063] The second (upper) plate 114 has a mold cavity 116 with molding surface 120 for molding the first molded plastic casting 26 on the circuit side 16 of substrate 12. The second plate 114 is supported by a top 128A. The surface 120 is configured to leave a peripheral area 122 of the substrate 12 uncovered by resin 130. This peripheral area 122 will be covered by the second molded plastic casting 28 in a subsequent step. In the embodiment shown in drawing FIG. 6, a step 136 is shown in the cavity surface 120, near the left side of the figure, corresponding to the noninsertable end 61 (see FIG. 4) of the finished semiconductor card 10. This step 136 forms a corresponding step portion 138 (see FIGS. 4 and 7) in the first molded plastic casting 26 to be covered by the second molded plastic casting 28. This feature allows formation of a depressed label area 38 which covers a limited portion of the card's front side 20, while at the same time ensuring that (a) all circuit elements on the circuit side 16 are covered by a first molding resin 130, and (b) nonlabel portions of the card's front side 20 are formed of a different molding resin. Optionally, the upper plate 114 may be configured to form a first molded plastic casting 26 of uniform upper surface 27, or with a step portion 138 at any desired location. In any case, the first molded plastic casting 26 comprises a platform which may be motivated downwardly to prevent resin leakage in a second molding step.

Please amend paragraph [0064] as follows:

[0064] To form the first molded plastic casting 26, a module 64 with circuitized substrate 12 is mounted between the lower plate 112 and the upper plate 114. Ejection pins 132

are inserted into pin holes 134, to be even with the surface 120 of upper plate 114. Fluid molding resin 130 is introduced under pressure into feed runner 124 and past the rate limiting feed gate 126 to fill the mold cavity 116. Following hardening of the resin 130, the plates 112, 114 are disassembled. Ejection pins 132 are then motivated to push the first molded plastic casting 26 including module 64 from the mold cavity 116 of upper plate 114.

Please amend paragraph [0072] as follows:

[0072] In the event that the substrate 12 is configured with external contacts 24 projecting outward from the substrate, the lower plate's molding surface 150 may include a depression 176 for enclosing the projecting contacts. (See FIG. 8.) contacts (see FIG. 8). Antiflash material 168 may be applied to the back side 18 to include coverage of the projecting external contacts 24, preventing formation of flash material which must be removed later.

Please amend paragraph [0077] as follows:

[0077] Following introduction of a second molding resin 160 (see FIG. 8) through the feed runner 154 into the mold cavities 186, 188, the resin is permitted to harden. The module 64 may then be removed from the molding assembly 180 by disassembling the lower and upper plates 182 and 184, assisted by activation of ejection pins 132. The twice-molded module 64 is shown in drawing FIG. 11. The wings 170' are shown as extending outward from major portions of the card peripheral edge 50.

Please amend paragraph [0082] as follows:

[0082] Another feature of the upper plate 204 comprises a plurality of down-set pin through-holes 216, each located above a connecting segment 90. A down-set pin 214 may be inserted in each through-hole 216 to motivate the connecting segments 90 and attached substrate 12 downward into and against the lower mold surface 210 of lower mold cavity 206. Passage of liquid polymer to the back side 18 of the substrate 12 is thus prevented.

Please amend paragraph [0083] as follows:

[0083] As shown in drawing FIGS. 13 and 14, each ~~down-set~~ through-hole 216 and pin 214 is positioned immediately over a connecting segment 90, outside of the peripheral edge 50 of the semiconductor card 10. The down-set pin 214 is shown as being generally cylindrical with an outer end 218 and an inner end 220 which may be of reduced size. In the figures, the inner end 220 is shown as having a hemispherical shape with chamfered edges, but any shape which effectively clamps a connecting segment 90 against the lower mold surface 210 may be utilized. For example, the inner end 220 may be square, rectangular, quarter round, lunate, etc. The through-holes 216 and down-set pins 214 are preferably configured so that the inserted pins are always in the same position relative to the connecting segments 90. As shown herein, the configuration of the molding assembly 200 and the configuration of module 64 must be compatible.